INTERSITE ANALYSES AND INTERPRETATIONS

The intersite analyses and interpretations of the C. Kimmey Tenant Farm Site were organized according to two primary research domains as defined in the state plan (DeCunzo and Catts 1990); namely, domestic economy and social and economic context, and landscape. A comparison of intersite architecture was undertaken to provide information on the domestic economy and the social and economic contexts of sites in Delaware and the Mid-Atlantic region. However, the late date of the C. Kimmey Tenant Farm Site's ceramic assemblage prevented the use of the scaling indices (Miller 1991) for comparisons. Within the research domain of landscape, two additional intersite analyses were conducted: 1) farmstead layout comparisons and 2) activity area and trash disposal pattern comparisons. Directions for further research are also noted.

Domestic Economy and Social and Economic Context

The two related research domains of domestic economy and social and economic contexts were defined by De Cunzo and Catts (1990). The domains address issues of household consumption, consumer behavior, and household composition. The primary factor in these domains is identifying historic wealth and socioeconomic divisions.

The C. Kimmey Tenant Farm Site was compared to other archaeologically investigated house sites to determine relative size and social ranking based on house dimensions. This comparison is significant because the archaeological record can provide data about living quarters and yard proxemics for portions of past populations, such as African-Americans and tenants, that are under-represented in the biased record furnished by the standing structures still extant on the landscape (Herman 1987a:112). Recent research by Herman (1987a) on types of tenant houses present in the Lower Delaware Valley during the nineteenth century has concluded that tenant structures were generally smaller, not as valuable, and less substantially constructed than owner-occupied structures. Survival of tenant dwellings as standing structures into the present has been infrequent, making their identification difficult. The best generalization about tenant versus owner- occupied dwellings and sites is that houses of the former seem to range in size from 380 to 490 square feet, and that tenant sites lack the proliferation of outbuildings associated with owner-occupied sites (Herman 1987a:64, 1987b; Stiverson 1977). Research involving house dimensions has shown that house sizes can be correlated with social rank (Herman 1978b); therefore, it is possible to construct a loose economic scale based on the size of archaeological remains of houses.

Table 18 shows the comparisons of the C. Kimmey Tenant house with several other excavated house sites in Delaware. All of the structures compared are generally contemporaneous, and the house sites utilized include owner-occupied and tenant-occupied structures. The eleven houses compared with the C. Kimmey Tenant Farm House were the owner-occupied William M. Hawthorn house (Coleman et al. 1984), the Buchanan-Savin house (Scholl, Hoseth, and Grettler 1994), the

TABLE 18

Size Comparisons of Nineteenth Century House Sites in New Castle and Kent Counties

SITE	DIMENSIONS (Feet)	FIRST FLOOR (Square Feet)		TOTAL AREA (Square Feet)	
Buchanan Tenant House					
Fire Insurance Record #721	Frame core	18 x 40 =	720	x 2 stories	1440
	Frame kitchen	18 x 24 =	432	x 2 stories	864
			1152		**2304**
Fire Insurance Record #722	Frame core	24 x 30 =	720	x 1 story	720
	Frame shed	8 x 24 =	192	x 1 story	192
			912		**912**
Buchanan-Savin House	Frame core	20 x 16 =	320	x 1.5 stories	480
	Frame kitchen	18 x 16 =	288	x 1.5 stories	432
	Frame addition	24 x 16 =	384	x 2 stories	768
	Cellar	24 x 16	**992**		384
					2064
C. Kimmey House	Brick core	27 x 20 =	540	x 2 stories	1080
	Frame kitchen	33 x 16 =	528	x 1.5 stories	792
	Shed addition	12 x 15 =	180	x 1 story	180
	Shed addition	8 x 6	**1248**	x 1 story	48
	Porch (enclosed)	16 x 6		x 1 story	96
	Cellar	27 x 20			540
					2736
A. Temple House	Original frame	26 x 24 =	624	x 2 stories	1248
	Frame addition	16 x 20 =	320	x 1.5 stories	480
	Cellar	16 x 24	**944**	x 1 story	384
					2112
Moore-Taylor House	Original frame	24 x 12 =	288	x 1.5 stories	432
	Kitchen addition	20 x 12 =	240	x 1.5 stories	360
	Porch	30 x 7	**528**	x 1 story	210
	Porch	12 x 7		x 1 story	84
					1086
W. Eager House	Original frame	30 x 20 =	**600**	x 1.5 stories	**900**
H. Wilson-Lewis House	Original frame	20 x 20 =	400	x 1 story	400
	Northeast addition	8 x 12 =	96	x 1 story	96
	North addition	6 x 30 =	180	x 1 story	180
	Southeast addition	6 x 10 =	60	x 1 story	60
			736		**736**
Williams-Stump House		27 x 17 =	**459**	x 1.5 stories	**689**
William M. Hawthorn House	Log original	29 x 21 =	609	x 2 stories	1218
	Kitchen addition	12 x 21 =	252	x 1 story	252
	Frame addition	12 x 17 =	204	x 1 story	204
			1065		**1674**
Ferguson House	Original frame	24 x 16 =	384	x 2 stories	768
	Addition	18 x 15 =	270	x 1.5 stories	405
			654		**1173**
Wilson-Slack	Original frame	32 x 30 =	**960**	x 2.5 stories	2400
	Cellar	32 x 30		x 1 story	960
					3360

TABLE 19

Summary of Houses Used in Size Comparisons

SITE	DATE	OCCUPANCY	REFERENCE	ECONOMIC STATUS OF OCCUPANTS
C. Kimmey House 7K-D-119	c. 1842-1970	Tenant & Owner	(Jamison et al. 1994)	Occupants consistently rank in upper socio-economic status
Buchanan Tenant House 7NC-J-175 #721	c. 1857	Tenant	(Scholl, Hoseth & Grettler 1993)	Initially built as home of large landowner
Hawthorn House 7NC-E-46	c. 1840-1961	Owner	(Coleman et al. 1984)	Occupants of site rank in upper 4-12 % of taxable local population through time
Buchanan-Savin House 7NC-J-175	1850-1990	Owner	(Scholl, Hoseth & Grettler 1993)	Occupants of mid-upper landowning class
Wilson-Slack House 7NC-D-189	1850-1983	Owner	(Coleman et al. 1985)	Owned by middle class rural industrial entrepreneurs. Occupants involved in blacksmithing & wheel-wrighting
Buchanan Tenant House 7NC-J-175 #722	c. 1857	Tenant	(Scholl, Hoseth & Grettler 1994)	Initially built as owner occupied
Moore-Taylor House 7K-C-380	c. 1829-1939	Owner	(Grettler et al. 1994)	Located on marginal land & all occupations by relatively poor people
H. Wilson-Lewis House 7K-C-375	c. 1860-1889	Tenant	(Grettler et al. 1994)	Located on marginal land & all occupations by relatively poor people
A. Temple House 7NC-D-68	c. 1830-1955	Tenant	(Hoseth et al. 1990)	Large & wealthy tenant managed farm
Ferguson House 7NC-D-93	1837-c.1980	Tenant	(Coleman et al. 1983)	No sufficient evidence
W. Eager House 7K-C-375	c. 1860-1889	Tenant	(Grettler et al. 1993)	Succession of relatively poor tenants & landowners
Williams-Stump House 7NC-D-130	1845-c.1930	Owner	(Catts & Custer 1990)	Black owned. Relatively low economic status

Wilson-Slack house (Coleman et al. 1985), the Williams-Stump house (Catts and Custer 1990), and the Moore-Taylor house (Grettler et al. 1994). Tenant sites utilized in the comparison were the Ferguson house (Coleman et al. 1983), the Temple house (Hoseth et al. 1990), the W. Eager house (Grettler et al. 1991b), and the H. Wilson-Lewis house (Grettler et al. 1994). Table 19 provides a summary of the houses used in this study and Figure 43 shows their locations.

FIGURE 43

Location of Houses Used in Size Comparisons

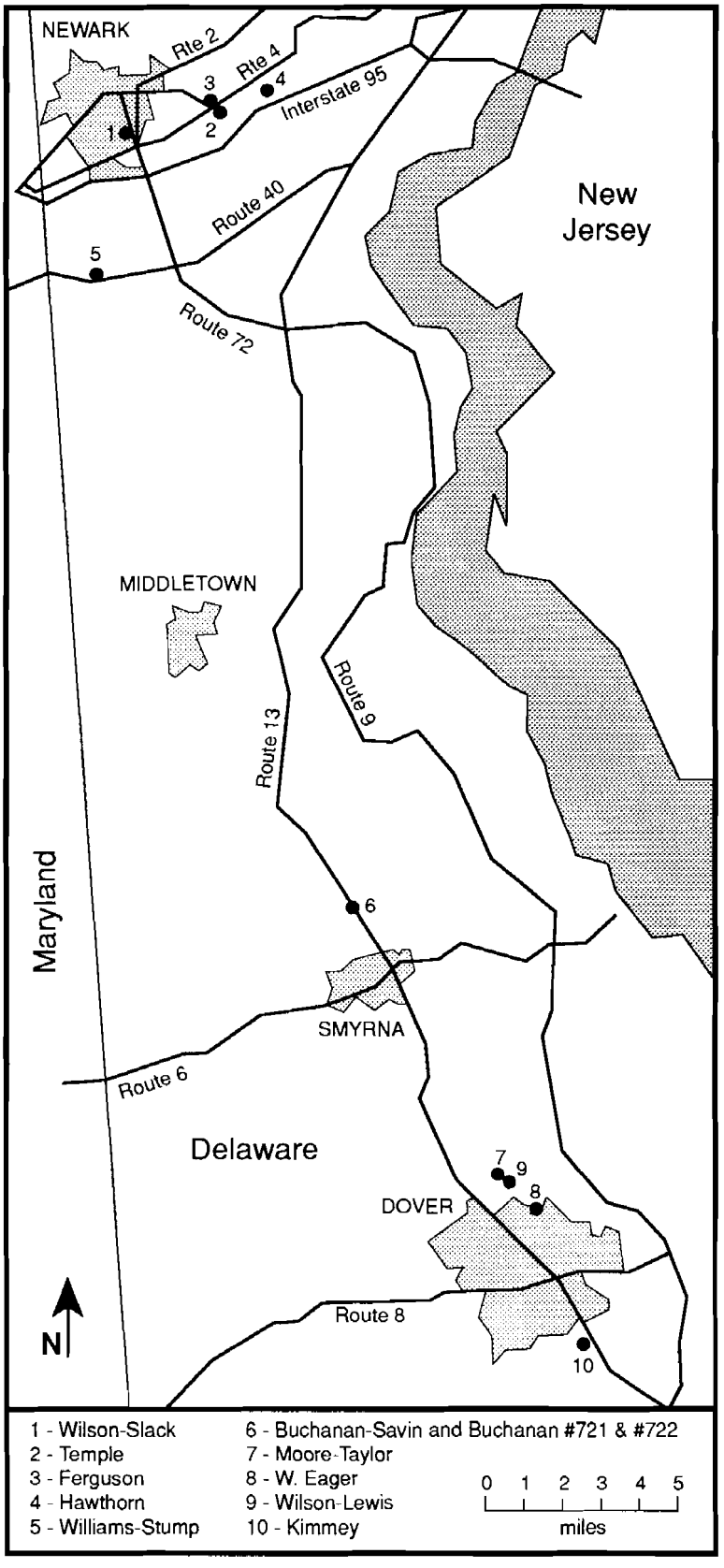


TABLE 20
First Floor Dimensions by Primary Occupation and Intersite Comparison of Overall Ranking

SITE	FIRST FLOOR DIMENSIONS	OVERALL RANKING
OWNER-OCCUPIED		
C. Kimmey House	1248	1
Hawthorn House	1065	3
Buchanan-Savin House	992	4
Wilson-Slack	960	5
Moore-Taylor House	822	7
Williams-Stump House	459	11
TENANT-OCCUPIED		
C. Kimmey House	1248	1
Buchanan-Savin Tenant House #721	1152	2
Buchanan-Savin Tenant House #722	912	6
H. Wilson-Lewis House	736	8
A. Temple House	704	9
Ferguson House	654	10
W. Eager House	600	12

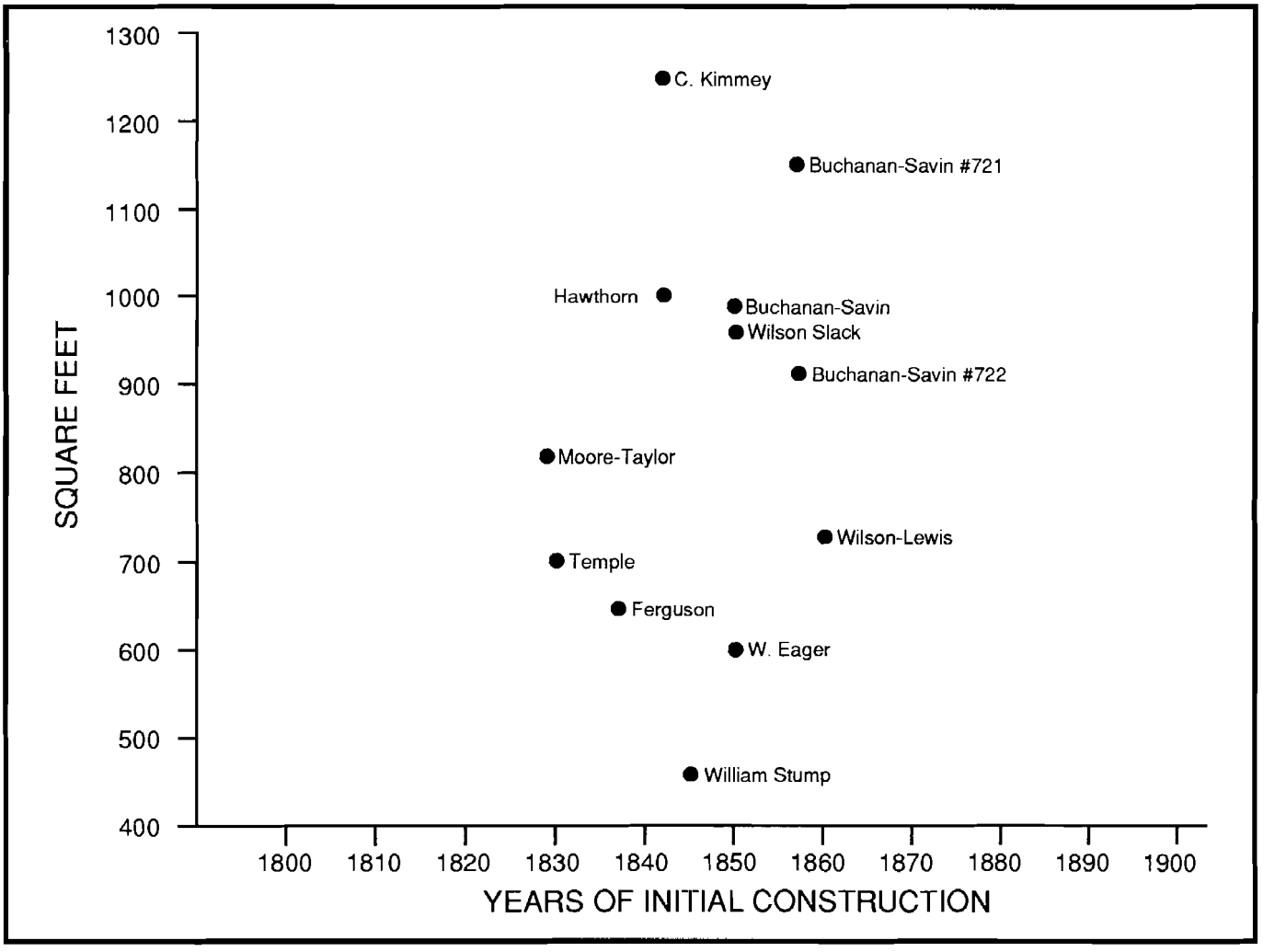
Several observations can be made about the dimensions of the C. Kimmey Tenant house (Table 20). The Kimmey house is the largest structure in the sample. The five largest dwellings (42%) were owner-occupied. The Kimmey house is 15 percent larger than the next largest structure, the Hawthorn house. The Kimmey house was also significantly larger than the black owner-occupied Williams-Stump house located in northern Delaware. Herman (1987a:162) has observed was that nineteenth century blacks typically lived in smaller and less stylish dwellings than did whites and the data in Table 20 supports his contention.

Herman (1987a) based his conclusions on the relationship between race and socioeconomic status and house sizes on observations made from standing structures. Archaeologically-derived data, however, indicates even stronger relationships among race, land ownership, and house size. Tenant houses tend to measure between 250 and 600 square feet. The largest tenant houses are almost always white-occupied. Black-occupied houses are typically smaller, with first floors usually measuring between 250 and 490 square feet. The William-Stump house was the smallest of the sites in the comparison. The next largest house was the tenant-occupied W. Eager house which was 30 percent larger than the Williams-Stump house. Figure 44 shows the distribution of first floor dimensions for 10 of the nineteenth and twentieth century houses used in the architectural comparison.

The size of owner- and tenant-occupied sites in the lower Delaware Valley increased over time. However, significant variation in first floor dimensions is present in all periods and variation increased over the course of the nineteenth century. This similarity indicates that both tenants and landowners benefited equally from changes in house size and construction techniques. The small

FIGURE 44

Plot of House Dimensions Over Time



sample size and significant variation in house size in all periods, however, somewhat weakens these conclusions. Further analysis of data from more houses, and more tightly dated houses, may indicate the extent of this trend towards larger houses and some of the social and economic factors this trend changes.

Landscape

Studies of historic landscapes include the broad patterns of site layout, spatial utilization, and activity areas (De Cunzo and Catts 1990). These studies seek to reconstruct and interpret the site through its immediate physical setting. The arrangements of architecture, fencelines, trash pits, gardens, fields, work areas, and forests are important and can be used to study historical, social and economic change. Specifically, landscape studies can address questions concerning

settlement patterns, environmental change, and economic activity. More than any other research domain identified by De Cunzo and Catts (1990), the theme of landscape is inclusive, rather than exclusive of a variety of research and interpretational standpoints.

Farmstead Siting, Layout, and Activity Areas. Although the physical layout and associated activity areas of the C. Kimmey Tenant Farm Site has already been examined in the intrasite analysis section, additional information can be obtained from comparisons with other nineteenth century farmsteads. The way each farm was situated, organized, and maintained is important and can yield significant historical data concerning settlement patterns, agricultural change, and environmental change. Lewis (1979) and other geographers have noted that changes to the landscape are labor intensive and were not undertaken randomly. Thus, human changes to the land can be used to reconstruct certain important social and economic changes (Evans 1978; Sauer 1963; Jackson 1984).

Glassie (1972:49) has suggested that farmstead layout and siting was affected by a large number of cultural and environmental variables. Foremost among the variables are the lay of the land, soil fertility, access to markets, and climate. As the land itself changes, so do these factors. Some of the social, economic, and environmental changes are reflected in the archaeological record. Landscape clues, however, are notoriously subtle. The "author" of specific changes in settlement patterns, farmstead layout, and other factors often cannot be determined. The archaeology of historical landscapes is also a new field and archaeologists in Delaware and the Middle Atlantic have only investigated a small number of nineteenth century sites from a landscape perspective. Thus, the conclusions reached in this discussion of the comparative landscapes of the sites are preliminary.

Four mid- to late nineteenth century farmsteads in Delaware have been investigated archaeologically with landscape issues in mind. These sites allow some level of intersite comparison with the C. Kimmey Tenant Farm Site and include the Moore-Taylor Farm Site (Grettler et al. 1994), the Wilson-Lewis Tenant Farm Site (Grettler et al. 1994), the Buchanan-Savin Farmstead Site (Scholl, Hoseth, and Grettler 1994), and the W. Eager Site (Grettler et al. 1991b).

The most striking feature of three farms is the large number of specialized outbuildings. The outbuildings were almost invariably located behind the farm house and were oriented towards the house. Changes in outbuilding alignment at the Buchanan-Savin Farm allowed archaeologists at the site to reconstruct three distinct periods of construction at the site related to transportation changes. The only exceptions were the two tenant farms, the W. Eager and Wilson-Lewis sites. The Wilson-Lewis Farm had only one outbuilding, a stable, and no evidence of outbuildings was preserved at the W. Eager Site. In comparison, the Moore-Taylor, Kimmey, and Buchanan-Savin farmsteads had between three and eighteen outbuildings.

The primary factor influencing the number of agricultural outbuildings in central Delaware appears to be the degree of economic specialization at each farm (Table 21). The two farms with the greatest number and variety of outbuildings were the C. Kimmey and Buchanan-Savin farms. The C. Kimmey Tenant Farm Site contained nine outbuildings, including two dairy barns and two milk sheds. Eighteen (ten nineteenth century and eight twentieth century) outbuildings were found at Buchanan-Savin. Both of the farms were occupied by well-to-do tenants and owners who turned

TABLE 21

Comparison of Outbuilding Dimensions of Late Nineteenth Century Farm Sites in New Castle and Kent Counties

SITE AND OUTBUILDING TYPE	DIMENSIONS (Feet)
Kimmey	
OB I (Dairy/bull barn)	13 x 13
OB II (Carriage house)	60 x 16
OB III (Dairy/potato barn)	40 x 36
OB IV (Pig barn)	47 x 20
OB V (Chicken house/garage)	30 x 20
OB VI (Milk shed)	11 x 21
OB VII (Water tower/milk shed)	10 x 12
OB VIII (Smoke house)	
OB IX (Farm shed)	10 x 49
Moore-Taylor	
OB I (Barn/stable)	24 x 10
OB II (Dwelling)	8 x 6
OB III (Probable farm structure)	12 x 8
Buchanan-Savin	
Structure I (Carriage house)	20 x 18
Structure II (Kitchen)	28 x 12
Structure III (Meal/corn/tool house)	28 x 12
OB I Stable wing	18 x 10
OB II Agricultural building	10 x 6
OB III (Addition off Structure I, possible pen or privy)	6 x 6
OB IV (Wellshed)	16 x 8
OB V Agricultural building, possible privy	6 x 6
Wilson-Lewis	
OB I	12 x 25
W. Eager	
No evidence	

OB - Outbuilding

to large-scale dairying operations when local transportation improvements brought regional urban markets within reach. The inhabitants of the Moore-Taylor, W. Eager, and Wilson-Lewis tenancies had significantly less working capital available and were apparently unwilling or unable to invest in new market opportunities demanding specialized outbuildings.

Specialization in outbuildings appears to be part of a general trend towards more formalized work areas on nineteenth century farms. All five farms had clearly defined front and rear yards. Front yards were invariably oriented to the nearest road used by the inhabitants. The yard areas had different degrees of domestic and agricultural activity. Artifact densities from casual trash deposition

were consistently lower in the more formal front yards than in the rear or side yards where daily activities were undertaken. The simple division of space between formal and informal yard areas was most striking at the Moore-Taylor, Kimmey, and Wilson-Lewis sites.

The second most striking feature of the nineteenth century farms is the large numbers of wells at the sites. Four of the five farms had at least two wells. The only site without multiple wells was the W. Eager Site. The Moore-Taylor Farm Site had five wells. The presence of multiple wells suggests a gradually increasing demand for water brought about by dairying operations. The third striking feature of all five nineteenth century farms was evidence of the rising importance of transportation along local roads. All five nineteenth century farms were primarily oriented towards local roads. Local physiographic features, such as slight sandy rises, were secondary concerns. Front facades of all houses faced the nearest road. Attached kitchen ells were added to the rear of the Kimmey, and Moore-Taylor houses.

The increasing orientation of these nineteenth and twentieth century farms to face local roads reflects the economic forces behind these occupations. The three poorest of the farms, the Moore-Taylor, W. Eager, and Wilson-Lewis sites, are on marginal land that was not occupied intensively until after a boom in the local economy in the 1850s that more than doubled land prices. Improved land in Little Creek Hundred valued at only $7 per acre in 1852 rose in value to $15 an acre in 1860 (Grettler et al. 1994). This increase in value was precipitated by a slow increase in land values in the 1830s and 1840s. Two key local events however, were renewed population growth and improved access to regional urban markets brought by the completion of the nearby Delaware Railroad through Dover in 1854 (Grettler 1990:196-97). While the value per acre increased during the same period, the increase in land value rose 25 percent in Dover Hundred where the C. Kimmey Tenant Farm Site was located.

The placements of the Moore-Taylor, W. Eager, and Wilson-Lewis farms on the landscape are a good example of this process. All three farms were settled on marginal land during brief periods of renewed local prosperity and associated population growth. Prior to settlement, all three farms were part of low, poorly-drained wooded areas along Muddy and Dyke branches. Orphans' Court plats of the area in the 1820s and 1830s show large areas of woods and "cripple," the term given to heavily wooded interior swamps and drainages. The woods were probably timbered occasionally because wood was scarce in central Delaware after the 1780s (Grettler 1990). By 1797, the first year for systematic data on woodlot size, most farmers in Little Creek Hundred had already cleared 70 percent of their total acreage. Because all good land had been cleared for the plow, new lands were often lesser quality. The C. Kimmey Tenant Farm Site, located in East Dover Hundred, reflects the same trend with only 23 percent of the land in improved acres.

Trash Disposal Patterns. Trash disposal patterns are an important and revealing part of the historical landscape because changes in trash disposal patterns may reflect major changes in lifeways and have been used in the Mid-Atlantic to reconstruct specific social and cultural events (Grettler 1992). The archaeological evidence of trash disposal patterns at the C. Kimmey Tenant Farm Site is a combination of casual sheet refuse, off-site disposal, and secondary deposits in deep features.

The distribution of artifacts in the plow zone indicates that sheet middens were a common disposal pattern. Secondary deposits in deep features (Features 31 and 7), and evidence of off-site trash disposal is clear.

The primary evidence of both casual sheet middens and secondary feature deposition at the C. Kimmey Tenant Farm Site is the small size and poor preservation of almost all of the artifacts found in both plow zone and feature contexts. The small percentage of extant vessels recovered from features indicates that household garbage was routinely disposed of as sheet refuse or at off-site locations. At the C. Kimmey Tenant Farm Site, a combination of both patterns probably occurred. Sheet midden debris was probably composted with animal manures and spread on adjacent fields as fertilizer or the debris was deposited off-site. This scenario would account for the large areas of low artifact density surrounding the site during the Phase I and II surveys (Bachman, Grettler, and Custer 1988; Grettler et al. 1991a).

The exceptions to this pattern of trash disposal were specific "cleanup" events in which large amounts of trash were deposited in deep features. "Cleanup" events probably occurred at the end of site occupations. The largest numbers of intact, or nearly intact, ceramic and glass vessels were deposited over a short period of time at the end of the site occupation and probably originated with the last, or at least later, occupations.

The privy (Feature 31) is a deep feature that was clearly used in a cleanup event. According to stratigraphy, the feature was used as a privy, and after indoor plumbing was put in the house, the privy was filled during at least one major cleanup event and then used occasionally for trash disposal. Another feature that was used for a cleanup event was Feature 7, the car pit. The Zimmermans left the car pit clear when they sold the property in 1958 (Frank Zimmerman, personal communication). At some time after that, an unknown occupant(s) used the deep feature for trash fill. The great number of intact, modern artifacts with no discernible internal stratigraphy indicates a major cleanup event.

The small size of the ceramic and glass assemblage recovered from the C. Kimmey Tenant Farm Site cannot be attributed to specific occupations. The artifacts deposited as sheet refuse from multiple occupations could not be further identified with any specific occupation.

Yard Proxemics. By combining the architectural data, artifact frequencies, and soil analysis results, a picture of temporal yard usage and proxemics for the C. Kimmey Tenant Farm Site occupants emerges. Yard proxemics are defined as the interpretations of the patterns of the yardscape around typical dwellings over time; in particular, the term refers to the "nature, degree, and effect of spatial separation between support structures, features, gardens, flower beds, fences, paths, and activity areas around a primary structure" (Jurney and Moir 1987:230). Glassie (1968, 1975) noted that the earliest farms in the North and Mid-Atlantic regions had open layouts with two centers, "the house and its support structure; and the barn and its dependencies" and that the "nineteenth century plan still shows this duality" (Glassie 1975:144). In other words, the farms of Glassie's study had two activity areas, domestic and agricultural. These concepts can be applied to the C. Kimmey Tenant Farm Site.

The domestic activity area of the C. Kimmey Tenant Farm Site was composed of a series of structures that matched those noted in Moir (1987). Figure 45 shows the loose "pattern" for nineteenth century occupations of the C. Kimmey Site. The well (Feature 63) for the C. Kimmey house was located six feet south of the structure. The privy (Feature 31) was located six feet to the west. A shift in yard layout over time is shown in Figure 45. The 1841 tax assessment for J. L. Harper, a tenant of Richard A. Cooper's unsettled estate, lists a carriage house and stables in addition to the dwelling house. Although no "shed" is listed, there appears to be a distinction between the active yard area and beyond. Charles Kimmey's 1862 application for insurance lists a dwelling, a smokehouse, barn, shed, and carriage house and stable. Kimmey may have added the smokehouse and shed to his active yard area as it lists the smokehouse as six feet away from the house, while the barn was added to compliment the existing agricultural area.

The western portion of the C. Kimmey Tenant Farm Site was the historical location of the agricultural activity area. The dual focus of activity, the dwelling and the farm, indicated by Glassie (1972) is well reflected in the archaeological remains. A fenceline separated the farmyard which contained three barns, a carriage house, a garage, two milk sheds, the remains of a possible smokehouse and frame shed from the outer yard. The Zimmerman occupation of the house (circa 1943 to 1958) provided two additional sketches of the agricultural area. Frank Zimmerman occupied the house first as a child, and later as owner and head of his own household. The changes in activity areas that took place after his father purchased the property and later during his ownership of the property are seen in Figure 46. This change reflects an adaptive reuse of the buildings due to agricultural shifts based on market demands. The functions of the buildings changed but not their locations.

Plow zone sampling within the agricultural activity area found a debris scatter of architectural remains such as nails, brick, and window glass. Soil sample distributions in both plow zone and subsoil indicated that deposits of phosphate, indicating animal wastes, were common. The presence of artifacts over the area indicated that some debris was allowed to accumulate, but most trash disposal took place elsewhere.

The domestic activity area, not surprisingly, contained domestic artifacts such as ceramics concentrated north, west, and south of the westernmost frame addition to the house. The ceramic concentrations form an equilateral triangle separating "the lesser used and/or highly swept and maintained Inner Yard and the less well maintained or more greatly used Outer Yard" (Moir 1987:233). Research has shown that the traditional eighteenth century yard was replaced with a well groomed and manicured lawn during the twentieth century which was ornamental and only used recreationally (Moir 1987:230; Glassie 1968, 1972).

Yard layout changed as the C. Kimmey Tenant Farm Site evolved. The original layout consisted of the dwelling and a small number of outbuildings. When Kimmey bought the property, he improved the house and land by building a two-story brick house with abasement addition to the frame structure and erected additional outbuildings. A revitalization of agricultural pursuits at the site is seen when the modern dairy farm was constructed. Further changes, but not additions, took place when the farm shifted to a potato farm.

FIGURE 45

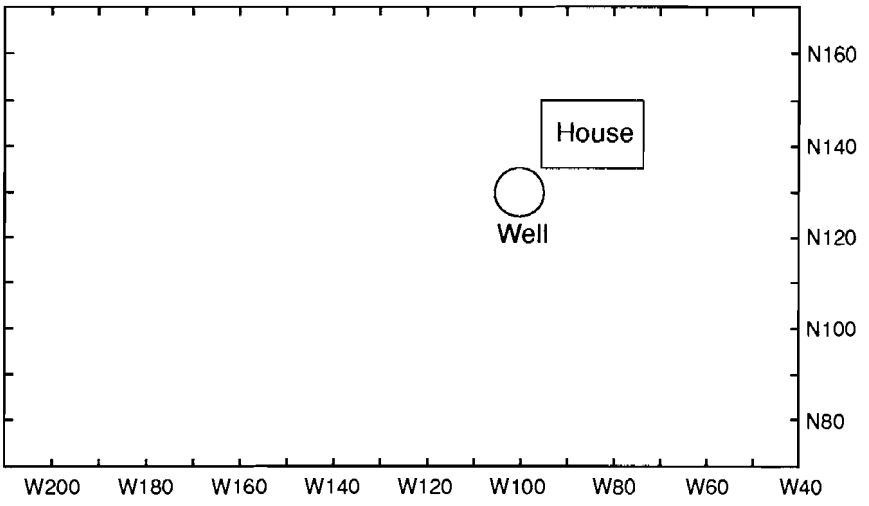
Site Layout Over Time During the Nineteenth Century

HARPER OCCUPATION (1841)

N

20 feet

Archival evidence of a carriage house and stable, but no archaeological evidence.

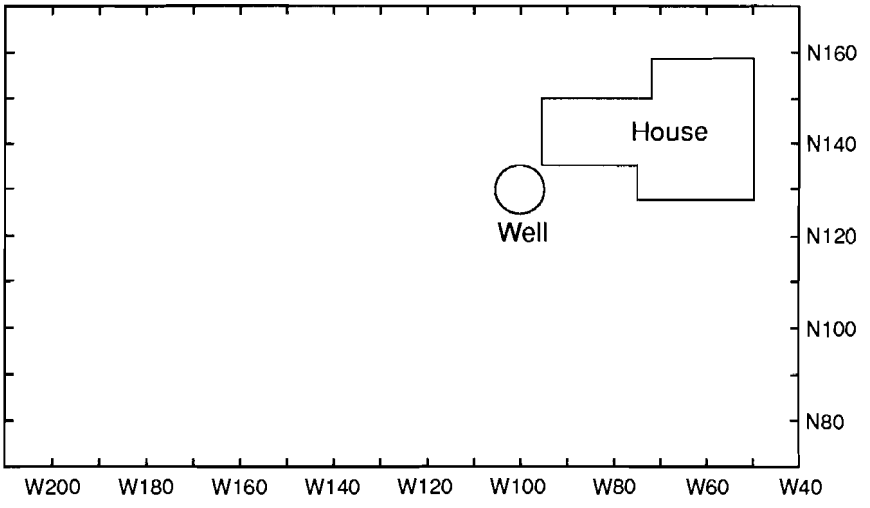


CATTS OCCUPATION (1860)

N

20 feet

Archival evidence of a stable and corn crib, but no archaeological evidence.



KIMMEY OCCUPATION (1862)

N

20 feet

Archival evidence of a barn, carriage house and stable, but no archaeological evidence.

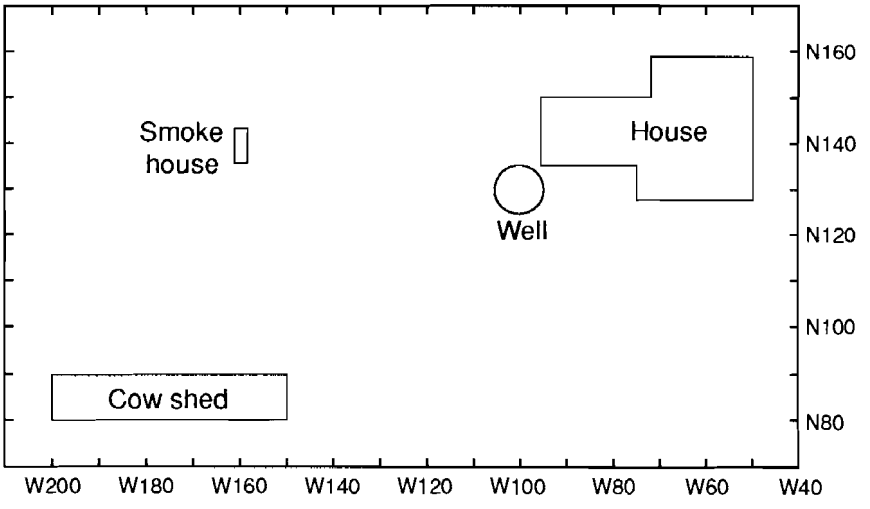
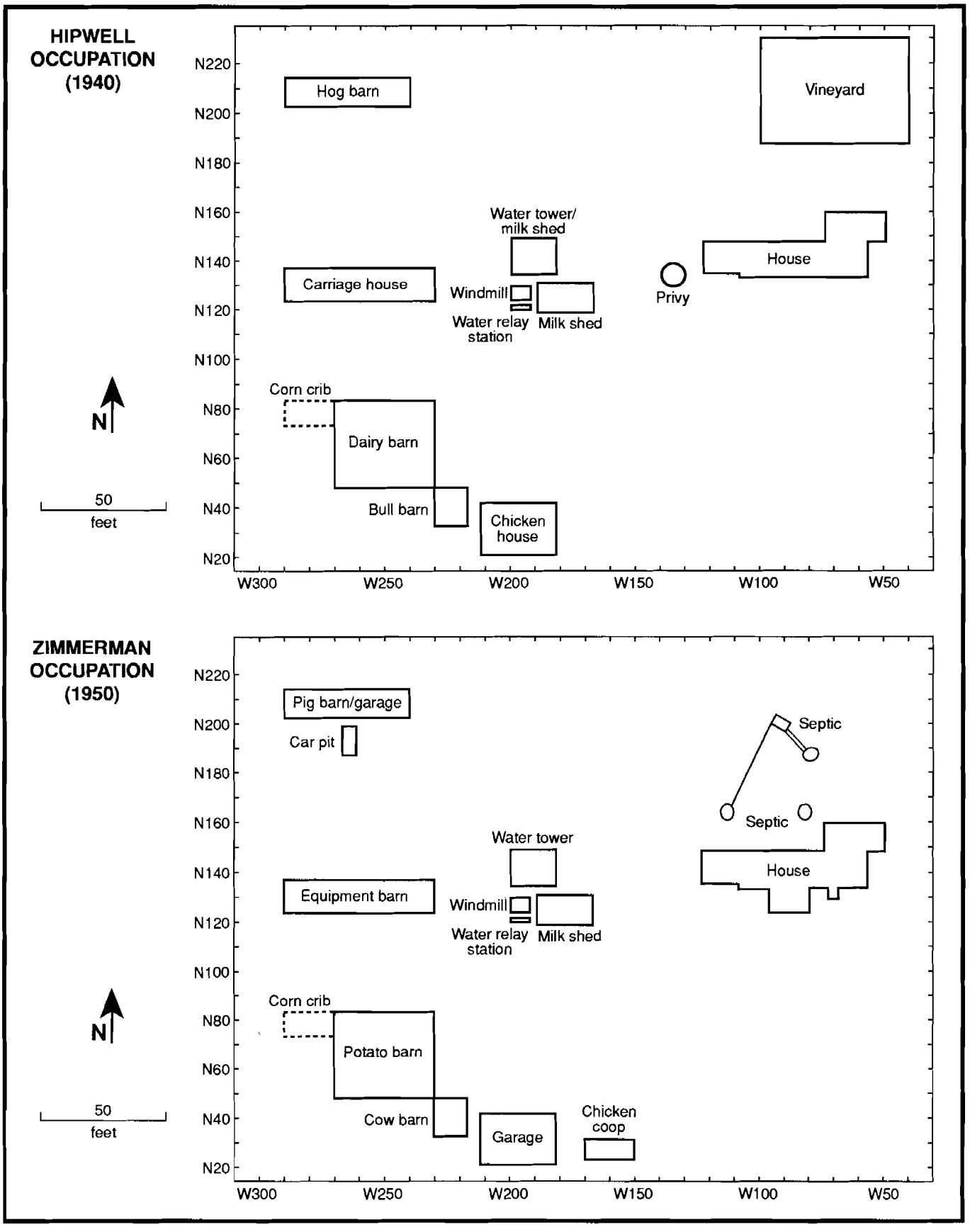


FIGURE 46

Site Layout Over Time During the Twentieth Century



The change from draft animal to tractor and from horse-drawn cart to truck in agriculture affected the various outbuildings of the C. Kimmey Tenant Farm. As the use of trucks grew in importance as a fast, efficient way to transport produce to market, the structures at the farm had to be altered to facilitate their use. A shed overhang, under which trucks were driven to load for market, was added along the south wall of Outbuilding III. Just east of Outbuilding III, the corn crib had an open area so trucks could be loaded. A groundwork ramp located north of Outbuilding VII was used to load cattle and hogs onto trucks. Finally, Feature 7, the carpit, was completed to work on the trucks. The increased use of the vehicles required time and effort to keep them running smoothly.

These improvements ensured the ability of the farmer to get produce and animals to markets in Philadelphia and New York in safe and efficient ways. The increase in efficiency meant better returns on investments. If the farmer could get more produce and products to the market and ensure their freshness, he could sell more. This would lead to a new attitude towards farming as more markets lead to bigger farms and mass production to meet growing demands for goods.